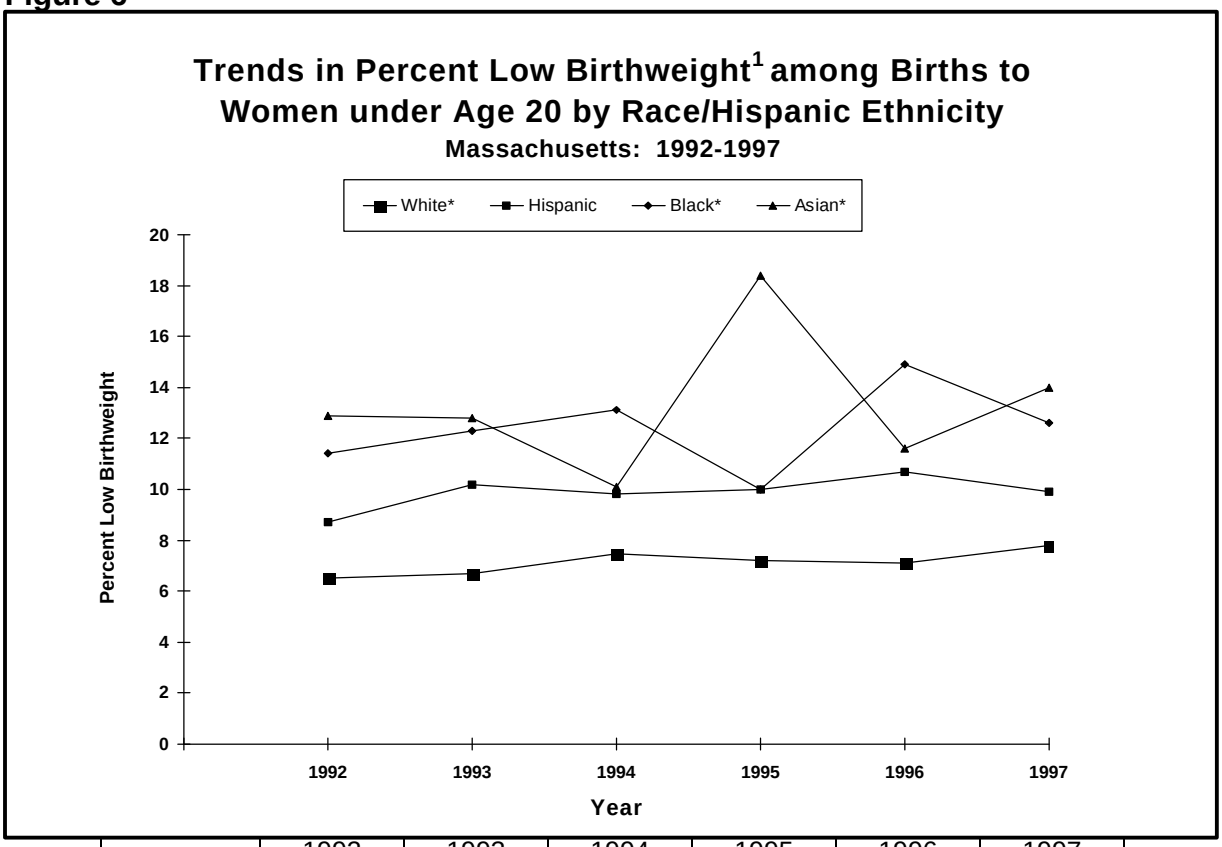
II.

Birth Outcomes and Prenatal Care

Figure 6



	1992	1993	1994	1995	1996	1997
White*	6.5	6.7	7.5	7.2	7.1	7.8
Black*	11.4	12.3	13.1	10.0	14.9	12.6
Hispanic	8.7	10.2	9.8	10.0	10.7	9.9
Asian*	12.9	12.8	10.1	18.4	11.6	14.0
Total <20	8.0	8.6	9.1	8.6	9.4	9.5

Source: Registry of Vital Records and Statistics, MDPH, 1992-1997.

* Non-Hispanic

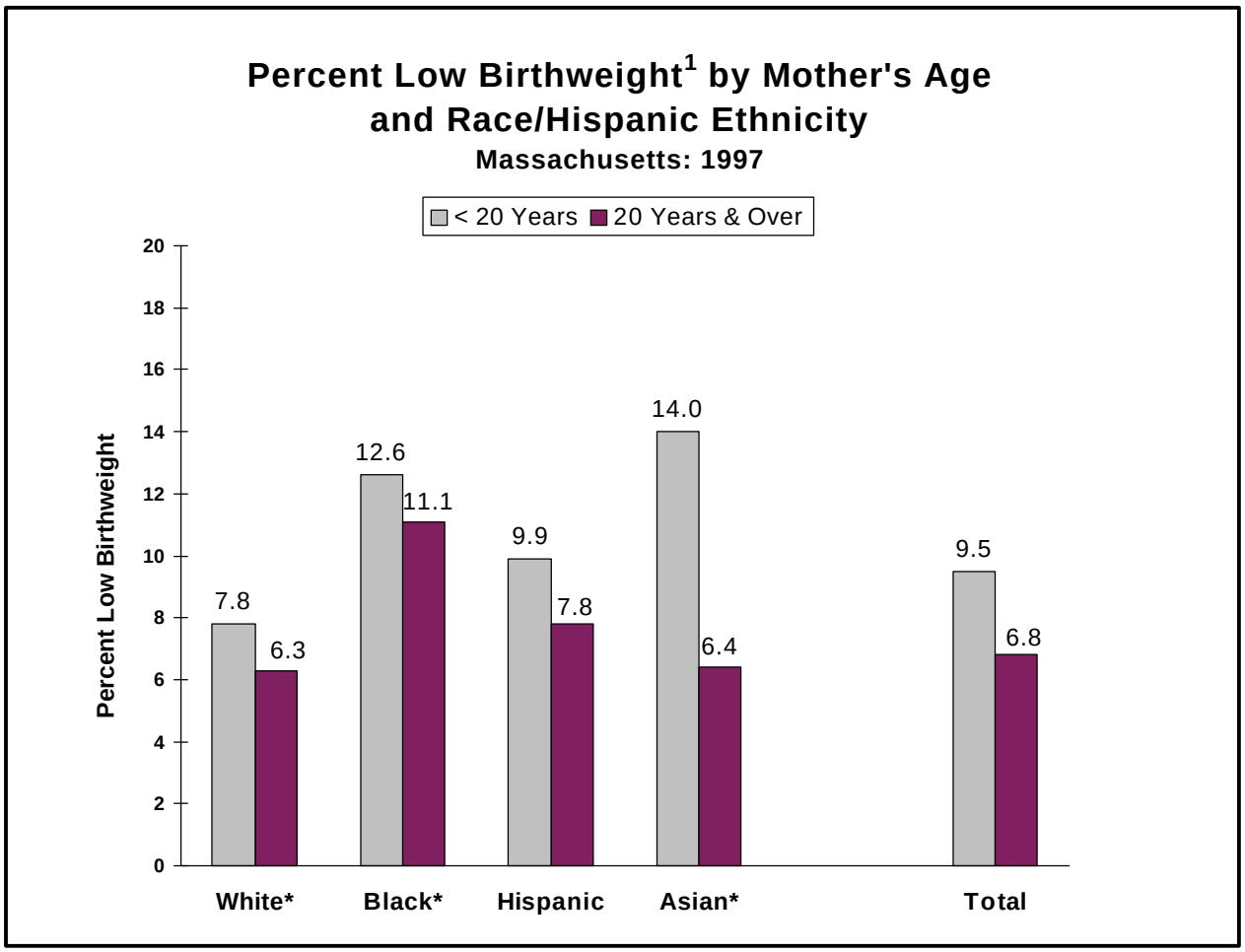
[1] Low birthweight: < 2,500 grams or 5.5 pounds.

- In 1997, the proportion of low birthweight births (less than 2,500 grams) among births to teens (ages 12-19) was 9.5%. The occurrence of low birthweight (LBW) among teens continued to differ across race/Hispanic ethnicity groups, with white non-Hispanic teens having the lowest percentages of LBW. This same pattern was seen among births to older women (ages 20 and older) (see Figure 7).

- In 1996, the widest gap between the percentages of LBW infants born to teens was between births to white non-Hispanic teen mothers (7.1%) and births to black non-Hispanic mothers (14.9%). This gap narrowed in 1997 due to an increase in LBW among white non-Hispanic teen births (to 7.8%) and a decrease among black non-Hispanic births (to 12.6%). Percentage LBW among Hispanic teen births decreased from 10.7% in 1996 to 9.9% in 1997.

- *Because the number of LBW births is small among Asian teen mothers, their LBW percentages fluctuate widely and changes over time should be interpreted with caution.* The percentage of LBW births to Asian teen mothers increased from 11.6% in 1996 to 14.0% in 1997, an increase attributable to a difference of 11 births.

Figure 7.



Source: Registry of Vital Records and Statistics, MDPH, 1997.
* Non-Hispanic
[1] Low birthweight: < 2,500 grams or 5.5 pounds.

- Overall, the proportion of low birthweight births among teen births was 39.7% higher than it was for births to adult women (9.5% vs. 6.8%). This ratio varied by race/Hispanic ethnicity. Low birthweight among births to black non-Hispanic teens in 1997 was only 13.5% higher than among births to black non-Hispanic adults (12.6% vs. 11.1%). Low birthweight among white non-Hispanic teens was 23.8% higher than among white non-Hispanic adult women (7.8% vs. 6.3%), while Asian teens had more than twice as high a percentage of low birthweight compared with adult Asian women (14.0% vs. 6.4%).

Table 13.
Low Birthweight[1] Births by Mother's Age and Race/Hispanic Ethnicity
Massachusetts: 1997

Mother's Age	White*		Black*		Hispanic		Asian*		Other		Unknown		Total	
	N[2]	%[3]	N[2]	%[3]	N[2]	%[3]	N[2]	%[3]	N[2]	%[3]	N[2]	%[3]	N[2]	%[3]
All Ages[4]	3,915	6.4	617	11.3	680	8.3	264	6.8	124	8.7	17	13.2	5,617	7.0
20 +	3,691	6.3	517	11.1	501	7.8	234	6.4	101	8.3	13	11.4	5,057	6.8
< 20	224	7.8	100	12.6	179	9.9	30	14.0	23	11.2	4	**	560	9.5
<18	73	8.2	47	14.2	104	13.1	15	14.2	9	11.8	0	0.0	248	11.3
18-19	151	7.7	53	11.5	75	7.4	15	13.9	14	10.9	4	**	312	8.5
15-17	67	7.7	44	14.1	96	12.9	14	14.6	8	11.0	0	0.0	229	10.9
<15	6	28.6	3	**	8	16.0	1	**	1	**	0	0.0	19	18.4

Source: Registry of Vital Records and Statistics, MDPH, 1997

* Non-Hispanic

** Calculations based on fewer than five events are excluded.

[1] Low birthweight: < 2,500 grams or 5.5 pounds.

[2] "N" is the total number of low birthweight births in each category.

[3] Percentages are based on the total number of births in each category for which birthweight is known.

[4] "All Ages" includes mothers of unknown age.

- The percentage of low birthweight births rose with decreasing maternal age, with the highest percentage overall occurring among the infants of women less than 15 years old (18.4%), and the lowest occurring among births to women ages 20 and older (6.8%).

- Low birthweight also varied by race/Hispanic ethnicity. The proportion of low birthweight births to Hispanic women was about 25% higher among both teen (<20 years of age) and older mothers (20 years and older) compared with LBW among white non-Hispanic women in each age group. The proportion of LBW births to black non-Hispanic teens was 61.5% higher than LBW among white non-Hispanic teens. Among women 20 years and older, the percentage of births to black non-Hispanics that were low birthweight was 76.2% greater than the percentage among whites that were low birthweight.

Table 14.
Percent Low Birthweight[1] Births by Mother's Age
Massachusetts and United States: 1997

Mother's Age	MA %[2]	U. S. %[2]
All Ages	7.0	7.5
20+ Years	6.8	7.2
< 20 Years	9.5	9.6
15-19 Years	9.3	9.5
< 15 Years	18.4	13.4

Source: Massachusetts data from Registry of Vital Records and Statistics, MDPH, 1997. U.S. data from the National Center for Health Statistics (NCHS), 1997. Please note that NCHS 1997 data are *preliminary*.

1 Low birthweight: < 2,500 grams or 5.5 pounds.

2 Percentages are based on the total number of births in each category for which birthweight is known.

- In 1997, the percentage of low birthweight (LBW) among births to Massachusetts women of all ages was lower than the national rate (7.0 vs. 7.7).

- Broken out by age, however, the 1997 Massachusetts percentage LBW among births to teens (<20 years of age) was equivalent to the teen LBW percentage nationwide (9.5% vs. 9.6%, respectively). Low birthweight among births to the youngest teens (<15 years of age) was higher than that of the nation (18.4% vs. 13.4%, respectively).

Table 15.
Low Birthweight[1] among Teen Births
by Level of Prenatal Care[2,3] and Mother's Race/Hispanic Ethnicity
Massachusetts: 1997

Mother's Race/ Ethnicity	Level of Prenatal Care								
	Adequate			Intermediate			Late/None		
	Births	Low Birthweight		Births	Low Birthweight		Births	Low Birthweight	
	N[4]	N	%	N[4]	N	%	N[4]	N	%
< 20 Years	3,414	292	8.6	1,807	186	10.3	541	48	8.9
White*	1,787	131	7.3	803	69	8.6	210	14	6.7
Black*	429	47	11.0	243	32	13.2	93	10	10.8
Hispanic	1,019	96	9.4	579	62	10.7	179	12	6.7
Asian*	86	11	12.8	88	11	12.5	36	7	19.4
Other*	90	7	7.8	91	12	13.2	18	2	**
Unknown	3	0	0.0	3	0	0.0	5	3	**

Source: Registry of Vital Records and Statistics, MDPH, 1997.

* Non-Hispanic

** Calculations based on 1-4 events are excluded.

1 Low birthweight: < 2,500 grams or 5.5 pounds.

2 Adequacy of Prenatal Care is determined by a calculation that combines trimester of prenatal care registration with the number of prenatal care visits and adjusts for gestational age. See Glossary for further explanation.

3 Due to a change in 1996 in the collection of information on Adequacy of Prenatal Care, caution should be used when comparing these data over time. Refer to Foreword for an explanation of these changes.

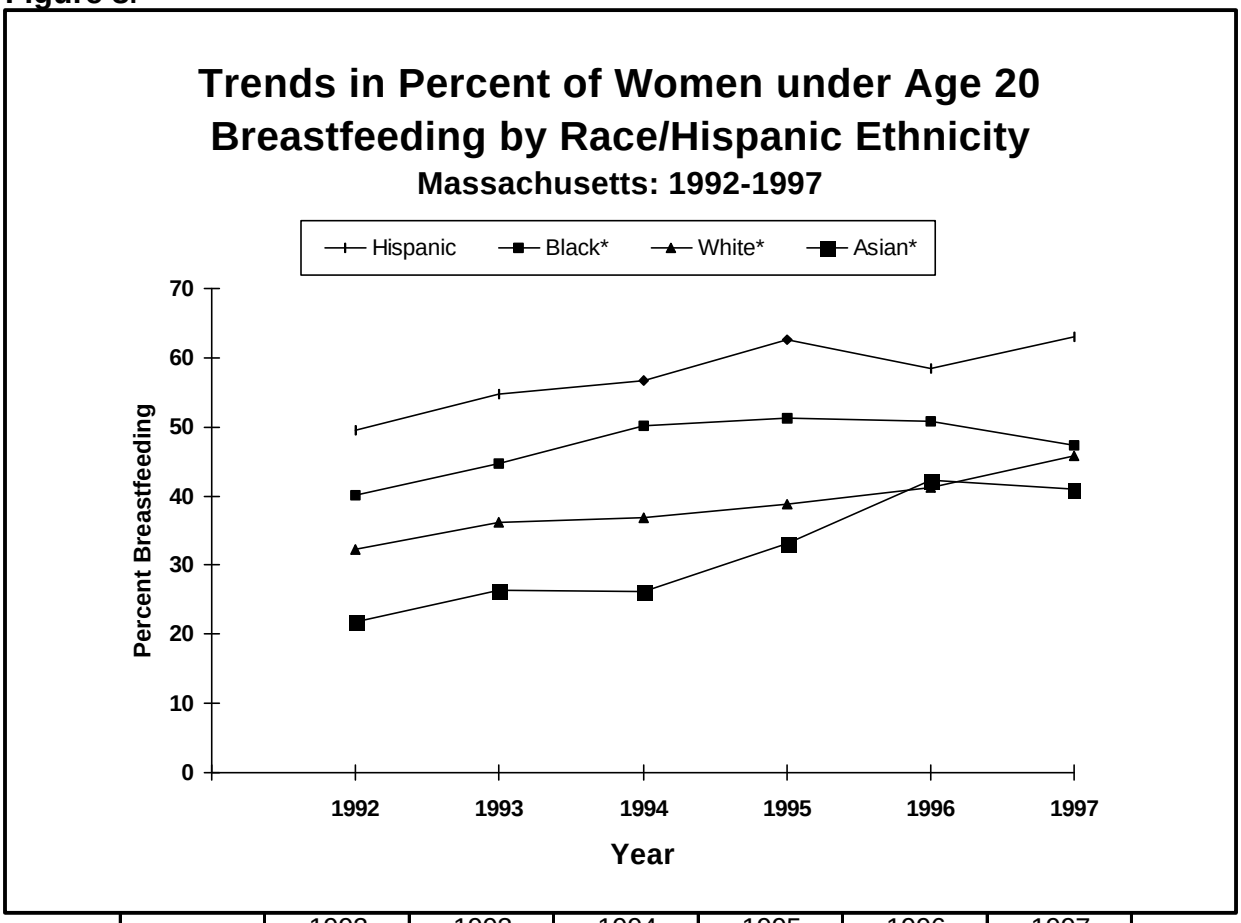
4 Births with unknown birthweight and/or unknown adequacy of prenatal care were excluded.

- Teen mothers (< 20 years of age) who received an intermediate level of prenatal care had a higher percentage of low birthweight births (10.3%) compared with those who received an adequate level of care (8.6%) or late or no prenatal care (8.9%). This pattern was true across race/Hispanic ethnicity groups, with the exception of Asians whose highest percentage of LBW births was among mothers who received late or no prenatal care (19.4%).

- There was variation in the incidence of low birthweight among race/Hispanic ethnic groups, irrespective of the level of prenatal care. Black non-Hispanic teens with adequate prenatal care had a substantially higher percentage of low birthweight (11.0%) than white non-Hispanic teens with adequate prenatal care (7.3%). This discrepancy held true for the intermediate and late or no prenatal care categories as well.

- The percentage of LBW was high among Asian teens regardless of adequacy of care, however the numbers are small and should be should be interpreted with caution.

Figure 8.



	1992	1993	1994	1995	1996	1997
White*	32.2	36.3	36.8	38.8	41.3	45.8
Black*	40.2	44.6	50.1	51.3	50.8	47.4
Hispanic	49.6	54.8	56.6	62.5	58.4	63.1
Asian*	21.9	26.4	26.1	33.1	42.2	41.1
Total	38.0	42.5	44.7	47.5	48.0	51.4

Source: Registry of Vital Records and Statistics, MDPH, 1997.

* Non-Hispanic

[1] Mother was breastfeeding or intending to breastfeed at the time the birth certificate was completed.

- The percentage of teen mothers who reported breastfeeding or an intention to breastfeed increased between 1996 and 1997 for white non-Hispanics (41.3% and 45.8%, respectively) and Hispanics (58.4% and 63.1%, respectively). Breastfeeding declined among black non-Hispanic teen mothers, from 50.8% in 1996 to 47.4% in 1997, and among Asians, from 42.2% to 41.1%, respectively.

- Hispanic teen mothers continued to have the highest percentage of breastfeeding or intention to breastfeed in 1997. Asian teen mothers consistently had the lowest percentages, with the exception of 1996, when the lowest reported percentage was among white non-Hispanic teen mothers (41.3%). Since 1992, the percentage of Asian teen mothers reporting breastfeeding or the intention to breastfeed has nearly doubled (from 21.9% to 41.9%).

Table 16.
Prenatal Care and Birth Characteristics By Mother's Age and Race/Hispanic Ethnicity
Massachusetts: 1997

Mother's Race/Ethnicity	Birthweight[1]				Prenatal Care							
	Very Low		Low		Adequate Care[2,3]		First Trimester		C-Section		Breastfeeding[4]	
	N	%[5]	N	%[5]	N	%[5]	N	%[5]	N	%[5]	N	%[5]
All Ages[6]	1,098	1.4	5,617	7.0	63,134	80.1	67,035	84.4	15,853	19.8	53,231	67.9
20 + Years	994	1.3	5,057	6.8	59,720	81.8	63,288	86.0	15,169	20.4	50,252	69.2
< 20 Years	104	1.8	560	9.5	3,414	59.2	3,747	64.6	684	11.6	2,979	51.4
White*	37	1.3	224	7.8	1,787	63.8	1,928	68.3	339	11.8	1,288	45.8
Black*	29	3.7	100	12.6	429	56.0	481	62.5	101	12.8	366	47.4
Hispanic	30	1.7	179	9.9	1,019	57.3	1,125	63.1	207	11.5	1,129	63.1
Asian*	2	**	30	14.0	86	41.0	97	46.0	12	5.6	88	41.1
Other*	4	**	23	11.2	90	45.2	111	55.2	22	10.7	107	53.2
Unknown	2	**	4	**	3	**	5	45.5	3	**	1	**

Source: Registry of Vital Records and Statistics, MDPH, 1997.

* Non-Hispanic

** Calculations based on fewer than five events are excluded.

1 Very low birthweight: < 1,500 grams or 3.3 pounds. Low birthweight: < 2,500 grams or 5.5 pounds.

2 Adequacy of Prenatal Care is determined by a calculation that combines trimester of prenatal care registration with the number of prenatal care visits and adjusts for gestational age. See Glossary for further explanation.

3 Due to changes, beginning in 1996, in the collection of information on Adequacy of Prenatal Care, caution should be used when comparing these data over time. Refer to Foreword for an explanation of these changes.

4 Mother was breastfeeding or intending to breastfeed at the time the birth certificate was completed.

5 Percentages are based on total number of births within each category when birthweight, prenatal care, cesarean section or breastfeeding information is known.

6 "All Ages" includes mothers of unknown age.

- In 1997, very low birthweight was slightly more common among births to teens (<20 years) than among births to older women (1.8% vs.1.3%). Among teen births, very low birthweight was highest among births to black non-Hispanic mothers (3.7%) compared with other race/Hispanic ethnicity groups.

- As in previous years, teen mothers were less likely than non-teen mothers to have received adequate prenatal care (59.2% vs. 81.8%) or prenatal care starting in the first trimester (64.6% vs. 86.0%).

- A higher proportion of white non-Hispanic teens received adequate prenatal care (63.8%) compared with other race/Hispanic ethnicity groups. Asian teen mothers had the lowest percentage (41.0%). The same pattern was found among those teen mothers who started prenatal care in the first trimester (68.3% vs. 46.0%).

- The difference between the percentages of Asian and white non-Hispanic teen mothers receiving adequate prenatal care declined from 1996 to 1997. In 1996, the percentage of white non-Hispanic teen mothers receiving adequate prenatal care was 68.6% higher than the percentage among Asian mothers; and 55.6% higher in 1997 (1996 data not shown).

- A lower proportion of teen mothers delivered by cesarean section compared with non-teen mothers (11.6% vs. 20.4%). The percentage for teen mothers declined from the previous year (from 12.4% to 11.6%), while the percentage among older mothers was unchanged (1996 data not shown).

- Just over half (51.4%) of teen mothers reported breastfeeding or an intention to breastfeed, compared with over two-thirds (69.2%) of older mothers.

Table 17.
Births by Gestational Age, Mother's Age, and Mother's Race/Hispanic Ethnicity
Massachusetts: 1997

Mother's Age and Gestational Age[1] (weeks completed)	White*		Black*		Hispanic		Asian*		Other*		Unknown		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
20 Years and Older	58,277	100.0	4,663	100.0	6,403	100.0	3,662	100.0	1,222	100.0	187	100.0	74,414	100.0
< 37 weeks	3,955	6.8	513	11.0	530	8.3	203	5.5	103	8.4	13	7.0	5,317	7.1
37-42 weeks	53,799	92.3	4,093	87.8	5,820	90.9	3,426	93.6	1,102	90.2	78	41.7	68,318	91.8
43 + weeks	152	0.3	25	0.5	32	0.5	15	0.4	7	0.6	0	0.0	231	0.3
Unknown	371	0.6	32	0.7	21	0.3	18	0.5	10	0.8	96	51.3	548	0.7
Less than 20 Years	2,865	100.0	794	100.0	1,807	100.0	214	100.0	205	100.0	19	100.0	5,904	100.0
< 37 weeks	200	7.0	90	11.3	185	10.2	20	9.3	19	9.3	2	**	516	8.7
37-42 weeks	2,637	92.0	696	87.7	1,606	88.9	192	89.7	184	89.8	10	52.6	5,325	90.2
43 + weeks	7	0.2	6	0.8	10	0.6	0	0.0	0	0.0	0	0.0	23	0.4
Unknown	21	0.7	2	**	6	0.3	2	**	2	**	7	36.8	40	0.7

Source: Registry of Vital Records and Statistics, MDPH, 1997.

* Non-Hispanic

** Calculations based on fewer than five events are excluded.

[1] Clinical estimate of the number of weeks of pregnancy completed as estimated by the attendant at birth or the postnatal physician. The definition of normal gestational age, which has been revised for 1997 report, is delivery between the completion of the 37th and the 42nd week of pregnancy (see Technical Notes).

[2] Percentages are based on column totals.

- The incidence of preterm birth (< 37 weeks gestation) continued to be higher among teen births than among births to older women (8.7% vs. 7.1%). The gap narrowed in 1997 compared to 1996, as a result of a larger decline in the percentage of preterm births to teens than to older mothers (1996 data not shown).

- Black non-Hispanic teen mothers had the highest percentage of preterm births among the race/Hispanic ethnicity groups (11.3%), followed by births to Hispanic teen mothers (10.2%). White non-Hispanic teen mothers had the lowest percentage of preterm delivery (7.0%). The same pattern was seen among births to older women.

Table 18.
Trends in Infant Mortality Rates[1] by Mother's Age and Race/Hispanic Ethnicity
Massachusetts: 1991-1996[2]

Mother's Age	White*		Black*		Hispanic		Asian*		Other/Unk		Total	
	N[3]	Rate	N[3]	Rate	N[3]	Rate	N[3]	Rate	N[3]	Rate	N[3]	Rate
1991												
20+	342	5.3	77	13.6	48	7.2	17	5.5	8	8.6	492	6.1
<20	38	9.9	14	13.2	20	11.3	1	**	2	**	75	10.7
1992												
20+	343	5.4	89	15.9	41	6.1	18	5.8	16	16.0	507	6.3
<20	32	9.0	20	18.9	19	11.0	0	0.0	2	**	73	11.0
1993												
20+	318	5.1	68	12.6	47	7.3	10	3.2	11	11.1	454	5.8
<20	25	7.2	14	14.0	23	12.7	2	**	0	0.0	64	9.7
1994												
20+	293	4.8	73	13.9	37	5.7	14	4.4	15	15.2	432	5.6
<20	33	10.0	8	8.0	20	10.3	1	**	2	**	64	9.7
1995												
20+	228	3.8	55	11.0	48	7.6	15	4.6	13	12.7	359	4.8
<20	25	7.8	7	8.1	15	8.7	0	0.0	1	**	48	7.9
1996												
20+	239	4.1	55	11.8	31	5.1	10	2.9	14	9.8	349	4.7
<20	21	7.1	10	12.3	13	7.5	1	**	2	**	47	8.0

Source: Registry of Vital Records and Statistics, MDPH: 1991-1996.

* Non-Hispanic

** Calculations based on fewer than five events are excluded.

[1] Age and race-specific infant mortality rate: number of infant deaths per 1,000 live births in each age group (see Glossary for further explanation).

[2] 1996 is the last year data were available for this analysis. See Technical Notes for further explanation of age-specific infant mortality.

[3] "N" refers to the number of infants born in that year who died before their first birthday.

- As in previous years, the 1996 infant mortality rate (IMR) was higher among births to teens than among births to older women. The IMR for infants born in 1996 was 8.0 deaths per 1,000 live births to teen women and 4.7 per 1,000 live births to older women.

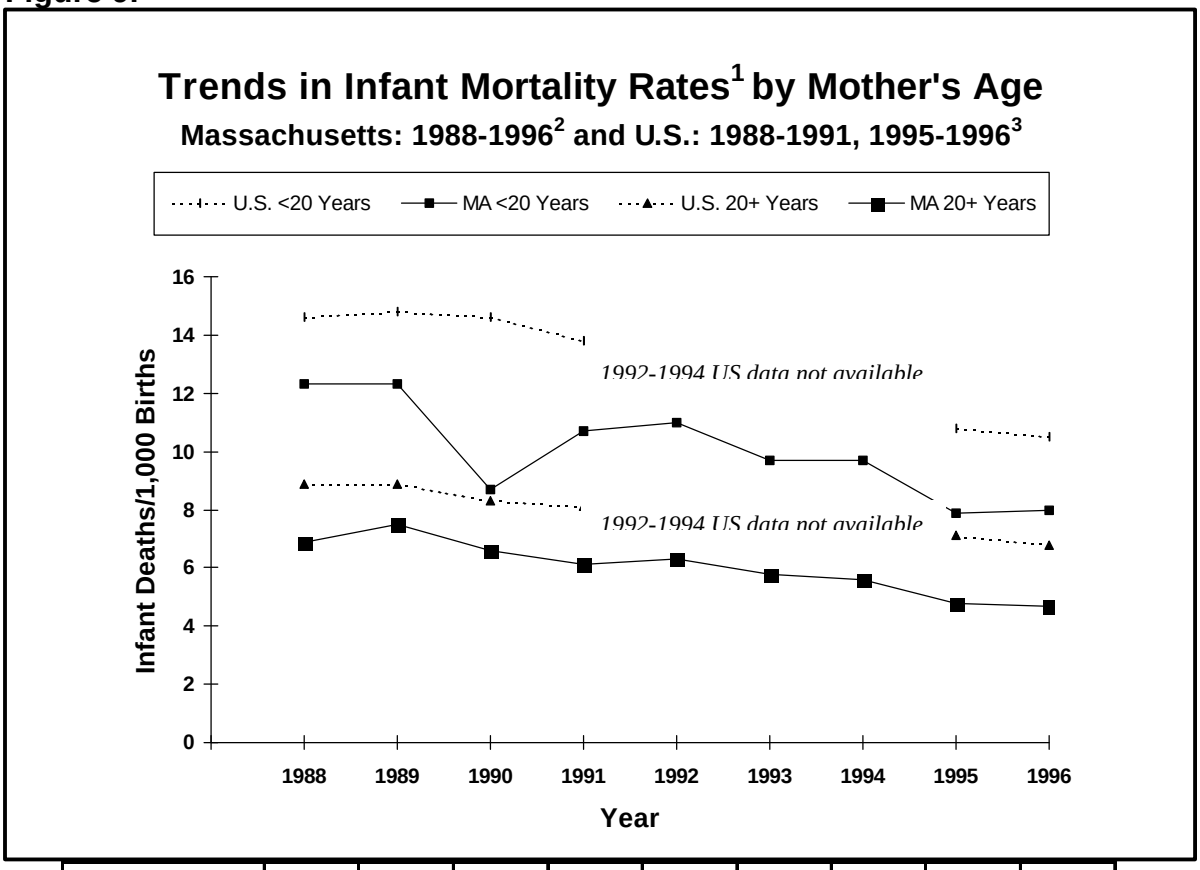
- In 1996, the IMR was higher among births to teens compared with births to older women across all race/Hispanic ethnicity groups except Asians. The number of Asian deaths (N=1) was so low that comparison is inappropriate in this group.

- While the IMR among births to white non-Hispanic and Hispanic teens has been consistently higher than the rate among non-teens, the same has not been true for black non-Hispanic teen mothers. Between 1991 and 1996, the IMR among births to black non-Hispanic women was lower for teen mothers in 1992, 1993 and 1996.

- Infant mortality rates overall have declined since 1991 for both teen births and births to older women. The decline from 1991-1996 in the infant mortality rate (IMR) among births to teens was slightly greater than the decline among births to older women (a 25.2% vs. 23.0% decline, respectively).

- While the IMR among infants born to teen mothers decreased from 1995 to 1996 among white non-Hispanics (from 7.8 to 7.1 deaths per 1,000 live births) and Hispanics (from 8.7 to 7.5 deaths per 1,000 live births), it increased among births to black non-Hispanic teens (from 8.1 to 12.3 deaths per 1,000 live births).

Figure 9.



	1988	1989	1990	1991	1992	1993	1994	1995	1996
U.S. <20 Years	14.6	14.8	14.6	13.8	N/A	N/A	N/A	10.8	10.5
MA <20 Years	12.3	12.3	8.7	10.7	11.0	9.7	9.7	7.9	8.0
U.S. 20+	8.9	8.9	8.3	8.1	N/A	N/A	N/A	7.1	6.8
MA 20+	6.9	7.5	6.6	6.1	6.3	5.8	5.6	4.8	4.7

Source: Registry of Vital Records and Statistics, MDPH, 1988-1996; National Center for Health Statistics, 1988-1991 and 1995-1996.

[1] Age-specific infant mortality rate: number of infant deaths per 1,000 live births to mothers in each age group (see Glossary for further explanation).

[2] 1996 is the latest year data were available for this analysis (see Technical Notes for further explanation).

[3] U.S. data not available for 1992-1994.

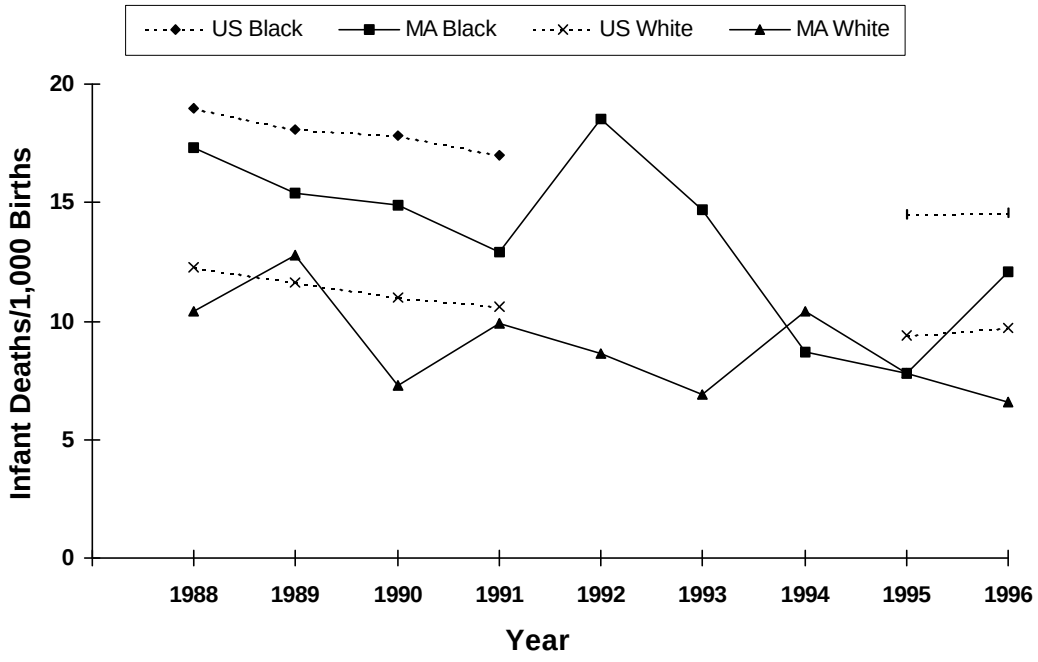
- The infant mortality rate (IMR) in Massachusetts has been consistently lower than the national IMR for both teen births and births to older women. The IMR among Massachusetts teen births in 1996 was 23.8% lower than the IMR among U.S. teen births (8.0 vs. 10.5 deaths per 1,000 live births). Similarly, the IMR among 1996 births to older women in Massachusetts was 30.9% lower than for the nation (4.7 vs. 6.8 per 1,000 live births).

- Between 1988 and 1996, the IMR in Massachusetts showed a greater decline compared with the nation for births to women of both age groups. During this period, the IMR among teen births declined 35.0% in Massachusetts compared with a decline of 28.1% for the U.S. The IMR for births to older women declined 31.9% in Massachusetts over the same period compared with 23.6% for the U.S. Between 1995 and 1996, however, the U.S. IMR for both age groups declined slightly, while the Massachusetts IMR for both age groups presented little change.

Figure 10.

Trends in Infant Mortality Rates[1] among Women under Age 20 by Race[2]

Massachusetts: 1988-1996[3] and US: 1988-1991, 1995-1996[4]



	1988	1989	1990	1991	1992	1993	1994	1995	1996
US Black	19.0	18.1	17.8	17.0	N/A	N/A	N/A	14.5	14.6
MA Black	17.3	15.4	14.9	12.9	18.5	14.7	8.7	7.8	12.1
US White	12.3	11.6	11.0	10.6	N/A	N/A	N/A	9.4	9.7
MA White	10.4	12.8	7.3	9.9	8.6	6.9	10.4	7.8	6.6

Source: Massachusetts data from Registry of Vital Records and Statistics, MDPH: 1988-1996. U.S. data from the National Center for Health Statistics, 1988-1991 and 1995-1996.

[1] Age and race-specific infant mortality rate: number of infant deaths per 1,000 live births to mothers in each age group (see Glossary for further explanation).

[2] The white and black race categories include Hispanics.

[3] 1996 is the latest year data were available for this analysis. See Technical Notes for further explanation.

[4] U.S. data not available for 1992-1994.

- For the four year period 1988-1991, infant mortality among teen mothers at the national level exceeded that of Massachusetts teen mothers for both blacks and whites (with an exception in 1989, when infant mortality among whites in Massachusetts exceeded that of the U.S.).

- The gap between the national and Massachusetts IMRs among black teen births narrowed from 1995 to 1996 due to the increase in black infant deaths in the state in 1996. In 1995, the national IMR among births to black teens was 85.9% higher; in 1996, it was 20.7% higher. Conversely, the gap between the national and Massachusetts IMRs among births to white teens widened: the national rate was 20.5% higher in 1995 and 47.0% higher in 1996.

Table 19.
Infant Mortality Rates[1] by Low Birthweight[2] and Mother's Age
Massachusetts: 1996[3]

	<1500g		1500-2499g		<2500g		2500+g	
Mother's Age	**N[4]**	**IMR**	**N[4]**	**IMR**	**N[4]**	**IMR**	**N[4]**	**IMR**
20 + Years	179	215.1	41	11.0	220	48.3	108	1.6
< 20 Years	25	257.7	5	11.1	30	54.8	16	3.1

Source: Registry of Vital Records and Statistics, MDPH: 1996.

[1] Age and birthweight-specific infant mortality rate: number of infant deaths per 1,000 live births in each age group (see Glossary for further explanation).

[2] Low birthweight: < 2,500 grams or 5.5 pounds.

[3] 1996 is the latest year data were available for this analysis. See Technical Notes for further explanation.

[4] "N" refers to the number of deaths occurring in that age and birthweight category.

- The infant mortality rate (IMR) among normal birthweight infants (2,500 grams or more) was nearly twice as high for births to teen mothers as for births to adult mothers (3.1 vs. 1.6 per 1,000).

- The IMR increased dramatically as birthweight declined, regardless of mother's age. In 1996, the IMR among very low birthweight births (< 1,500 grams) to teen mothers was 23 times greater than the rate among moderately low birthweight births (1,500-2,499 grams) (257.7 vs. 11.1). The IMR among very low birthweight births to adult mothers was 20 times greater than the rate among moderately low birthweight births (215.1 vs. 11.0).

- The IMRs among births to teens exceeded the rates for adults in each birthweight category except for moderately low birthweight, where the rates were comparable (11.1 and 11.0, respectively). Compared with 1995, the difference between the IMRs of teen and adult very low birthweight births narrowed in 1996. In 1995, IMR among very low birthweight teen births was 33.7% higher than very low birthweight adult births (279.1 vs. 208.7), compared to 19.8% higher in 1996 (257.7 vs. 215.1).

- Between 1995 and 1996, infant mortality among low birthweight births (<2500 grams) decreased for both teens and adults. A larger decrease in IMR was found among births to teens (6.8%) than to adults (1.6%) (1995 data not shown).

Table 20.
Trends in Neonatal and Post Neonatal Mortality Rates[1] by Mother's Age Massachusetts: 1991-1996[1]

Mother's Age	Neonatal[2] Mortality		Post Neonatal[3] Mortality		Total Infant[4] Mortality	
	N[5]	Rate	N[5]	Rate	N[5]	Rate
1991						
20+	350	4.3	142	1.8	492	6.1
<20	51	7.3	24	3.4	75	10.7
1992						
20+	372	4.6	130	1.6	502	6.2
<20	52	7.8	21	3.2	73	11.0
1993						
20+	331	4.2	123	1.6	454	5.8
<20	44	6.7	20	3.0	64	9.7
1994						
20+	309	4.0	122	1.6	431	5.6
<20	47	7.2	17	2.6	64	9.7
1995						
20+	263	3.5	96	1.3	359	4.8
<20	29	4.7	19	3.1	48	7.9
1996						
20+	252	3.4	95	1.3	347	4.7
<20	28	4.8	19	3.2	47	8.0

Source: Registry of Vital Records and Statistics, MDPH: 1991-1996.

[1] 1996 is the latest year data were available for this analysis. See Technical Notes for further explanation.

[2] Neonatal: less than 28 days (see Glossary)

[3] Post neonatal: 28-364 days (see Glossary)

[4] Age-specific infant mortality rate: number of infant deaths per 1,000 live births in each age group (see Glossary for further explanation).

[5] "N" refers to the number of deaths occurring in that year.

- In 1996, the post-neonatal mortality rate among births to teen mothers was over two times that of adult mothers (3.2 vs. 1.3). Neonatal mortality was also higher among births to teen mothers (4.8 vs. 3.4). Since 1991, neonatal and post neonatal mortality occurred at consistently higher rates among births to teens compared with adults.

- Regardless of mother's age, the IMR was consistently higher during the neonatal period than in the post neonatal period.

- After a 34.7% drop between 1994 and 1995, the 1996 neonatal mortality among births to teen mothers remained relatively unchanged from 1995 (4.7 in 1995 vs. 4.8 in 1996). A similar pattern was found among adult mothers.

Table 21.
Maternal Smoking[1,2] by Mother's Age and Race/Hispanic Ethnicity
Massachusetts: 1997

Mother's Race/Ethnicity	< 20 Years			20+ Years		
	Births N[3]	Smokers N	%	Births N[3]	Smokers N	%
Total	5,875	1,255	21.4	74,115	8,561	11.6
White*	2,860	920	32.2	58,168	7,280	12.5
Black*	792	88	11.1	4,653	525	11.3
Hispanic	1,803	181	10.0	6,389	577	9.0
Asian*	214	24	11.2	3,658	59	1.6
Other*	204	42	20.6	1,220	117	9.6
Unknown	2	0	0.0	27	3	**

Source: Registry of Vital Records and Statistics, MDPH, 1997.

* Non-Hispanic

** Calculations based on 1-4 events are excluded.

1 Any amount of cigarette smoking by mother during pregnancy.

2 Maternal smoking is self-reported by mothers, usually following the birth of their child, and as such these data should be interpreted cautiously. Self-reported data may be biased, artificially lowering smoking prevalence.

3 Cases with unknown smoking status were excluded.

- As in 1996, more teen mothers reported smoking during pregnancy in 1997 than adult mothers (21.4% vs. 11.6%). Between 1996 and 1997, the percentage of teen mothers who smoked during pregnancy decreased from 23.1% to 21.4%. The percentage of adult women who smoked also decreased slightly from 12.4% to 11.6% (1996 data not shown).

- Among teen mothers, white non-Hispanics had the highest prevalence of smoking (32.2%), nearly 3 times that of the next highest race/Hispanic ethnicity, Asian (11.2%). Hispanic teen mothers had the lowest prevalence of smoking (10.0%). White non-Hispanic teen mothers were also 2.6 times more likely to smoke during pregnancy than were adult mothers of the same race.

- Between 1996 and 1997, smoking prevalence during pregnancy decreased among the following teen race/Hispanic ethnicity groups: white non-Hispanic, from 34.0% to 32.2%; black non-Hispanic, from 13.0% to 11.1%; Hispanic, from 10.8% to 10.0%. Among Asian teen mothers, the smoking prevalence during pregnancy increased from 9.8% to 11.2% (1996 data not shown).

Table 22.
Low Birthweight by Mother's Age, Smoking[1,2] Status and Race/Hispanic Ethnicity
Massachusetts: 1997

	Smokers			Non-Smokers		
	Births	LBW		Births	LBW	
Mother's Age	N[3]	N	%[4]	N[3]	N	%[4]
20 Years and Older	8,557	892	10.4	65,510	4,124	6.3
White*	7,277	728	10.0	50,856	2,937	5.8
Black*	525	78	14.9	4,123	438	10.6
Hispanic	577	74	12.8	5,810	425	7.3
Asian*	59	3	**	3,596	230	6.4
Other/Unknown*	119	9	7.6	1,125	94	8.4
< 20 Years	1,253	145	11.6	4,615	408	8.8
White*	918	96	10.5	1,940	127	6.5
Black*	88	13	14.8	702	86	12.3
Hispanic	181	25	13.8	1,619	153	9.5
Asian*	24	5	20.8	190	25	13.2
Other/Unknown*	42	6	14.3	164	17	10.4

Source: Registry of Vital Records and Statistics, MDPH, 1997.

* Non-Hispanic

** Calculations based on fewer than five events are excluded.

[1] Any amount of smoking cigarettes by mother during pregnancy.

[2] Maternal smoking is self-reported by mothers, usually following the birth of their child, and as such these data should be interpreted cautiously. Self-reported data may be biased, artificially lowering smoking prevalence.

[3] Cases with unknown smoking status or birthweight were excluded.

[4] Percentage of low birthweight births (<2,500 grams) to smoking or non-smoking mothers.

- Low birthweight births occurred more frequently among mothers who smoked during pregnancy than among non-smoking mothers, for both teen and adult mothers, and across all race/Hispanic ethnicity groups (except among Asians where there were too few smokers to make the comparison meaningful).

- The percentage of low birthweight births to smokers increased from 1996 to 1997 for teen mothers (10.9% to 11.6%) and showed little change for adult mothers (10.6% to 10.4%) (1996 data not shown). There was variation in the change from 1996 to 1997 by race/Hispanic ethnicity. White non-Hispanic smokers showed an increase in low birthweight births (teens: 9.0% to 10.5%, adults: 9.6% to 10.0%). Hispanic smokers showed a decrease in low birthweight births among teens (14.7% to 13.8%) and adults (13.7% to 12.8%). The

greatest decreases were found among black non-Hispanic smokers, both teens (24.0% to 14.8%) and adults (20.7% to 14.9%).

- In 1997, the percentage of low birthweight births among black non-Hispanic teen smokers was 1.4 times greater than among white non-Hispanic smoking teens. The percentage of low birthweight births among non-smoking black non-Hispanic teens was 1.9 times greater than non-smoking white teens.

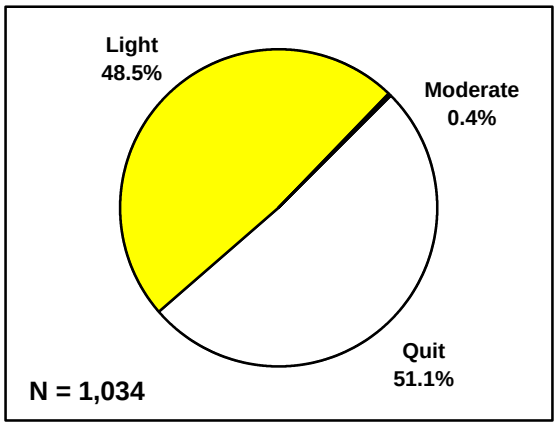
- The percentage of low birthweight births among adult smokers was 65% higher (10.4% vs. 6.3%) than among adult non-smokers. Among teens, the percentage of low birthweight births was 32% higher (11.6% vs. 8.8%) for smokers compared with non-smokers.

- Compared with non-smokers, low birthweight among smokers varied little between the two age groups, particularly for non-Hispanic white and black smokers. The percentage of low birthweight births to black non-Hispanic teen smokers was virtually the same as to adult smokers of the same race (14.8% vs. 14.9%). This is a change from 1996 when births to black teen smokers had a higher prevalence of low birthweight (1996 data not shown).

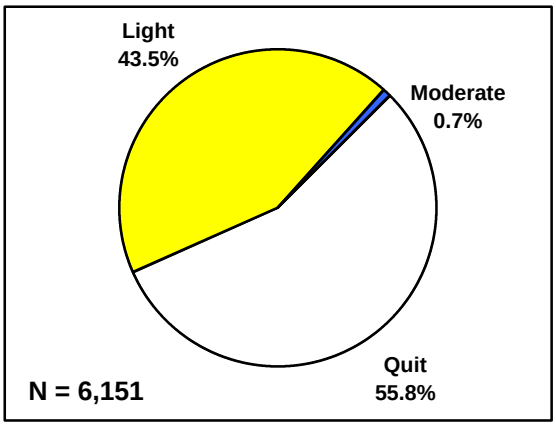
Figure 11.
Smoking Level[1] During Pregnancy by Mother's Age and Smoking Level Prior to Pregnancy
Massachusetts: 1997

Smoking Status During Pregnancy among Light Smokers Prior to Pregnancy

Mother's Age: **<20 years**

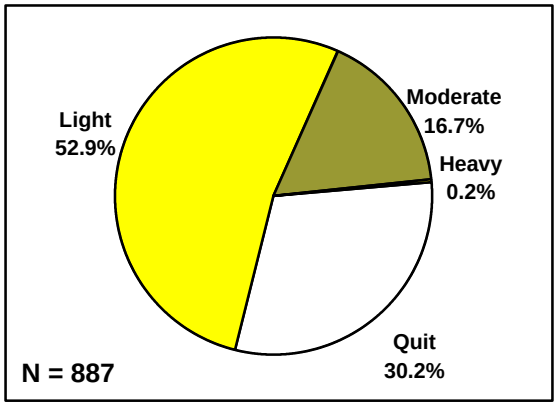


Mother's Age: **20+ years**

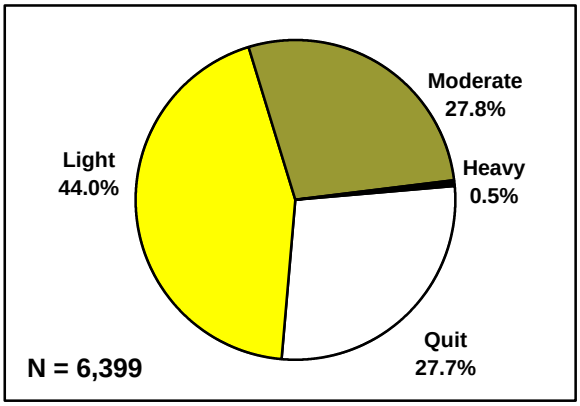


Smoking Status During Pregnancy among Moderate Smokers Prior to Pregnancy

Mother's Age: **<20 years**

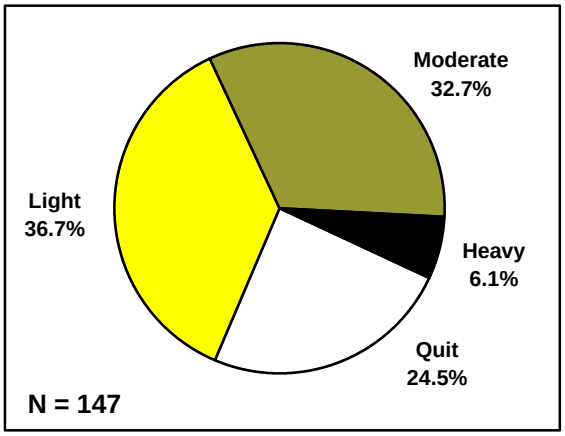


Mother's Age: **20+ years**

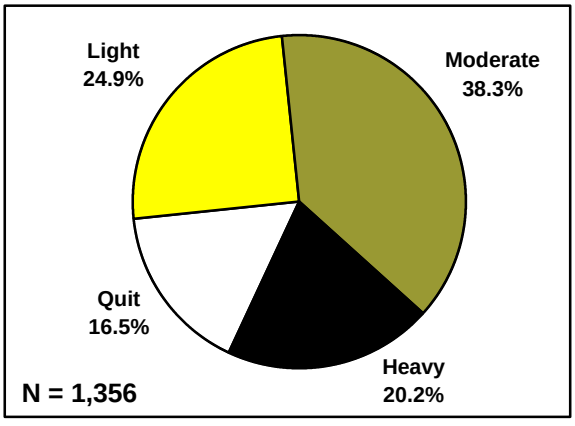


Smoking Status During Pregnancy among Heavy Smokers Prior to Pregnancy

Mother's Age: **<20 years**



Mother's Age: **20+ years**



Source: Registry of Vital Records and Statistics, MDPH, 1997.

[1] Daily use: Light = 1-10 cigarettes, Moderate = 11-20 cigarettes, Heavy = 21+ cigarettes

- Overall, the fewer cigarettes mothers smoked *prior* to pregnancy, the more likely they were to quit or reduce their level of smoking *during* pregnancy. This pattern was found among both teen and non-teen age groups.

- Among teen mothers who were light smokers prior to pregnancy (smoked 1-10 cigarettes per day), just over half (51.1%) quit smoking during pregnancy, 48.5% maintained light smoking and less than 1% increased their smoking to moderate levels. This pattern also occurred among non-teen mothers.

- In 1997, 83.1% of teen mothers who were moderate smokers prior to pregnancy either quit or reduced their consumption, compared with 71.7% of non-teen mothers in the same category. Among teen moderate smokers, 52.9% reduced their smoking status to light and 30.2% quit, while 44.0% of older moderate smokers reduced to light smoking and 27.7% quit.

- Older mothers (ages 20 and older) who were heavy smokers prior to pregnancy (smoked 21 or more cigarettes per day) were far less likely to quit or reduce their smoking levels compared with heavy smoking teen mothers. Among the heavy smoking mothers, 61.2% of teens either quit or reduced their smoking levels to light compared with 41.4% of older mothers. Similarly, 20.2% of older, heavy smoking mothers remained heavy smokers during pregnancy, as opposed to only 6.1% of teen, heavy smoking mothers.

Table 23.
Expected Educational Attainment among Teen Mothers by Race/Hispanic Ethnicity
Massachusetts: 1997

Community	Behind Grade Level[1]	
	Number	Percent
Total	1,744	29.7
White*	760	26.6
Black*	141	17.8
Hispanic	721	40.0
Asian*	63	29.4
Other	59	28.9
Unknown	0	0.0

Source: Registry of Vital Records and Statistics, MDPH, 1997.

1 "Behind Grade Level" is defined as two or more grades behind the maximum expected age for a grade at the time of delivery. See Technical Notes and Glossary for further explanation.

- In 1997, 29.7% of births to teens (< 20 years of age) were to women who were behind their expected grade level at school.

- The proportions of teens who were behind their expected grade level at school varied by race/Hispanic ethnicity. A greater proportion of Hispanic teen mothers were behind their expected grade level (40.0%) compared to Asians (29.4%), white non-Hispanics (26.6%), and black non-Hispanics (17.8%).